REMARKS:

1) Referring to item 10) of the Office Action Summary, please indicate the acceptance of the drawings filed on January 9, 2006.

2) In accordance with the PCT procedures, the original specification of this application was a direct literal translation of the foreign language text of the corresponding PCT International Application. The specification has now been amended in an editorial manner to better comply with US application format, for example including section headings, avoiding reference to particular claim numbers in the description, etc. The abstract has been amended for proper US form and content. Also, an inherent feature has been expressly described at page 7 line 14, namely that an edge of the component to be milled is a one-dimensional line in three-dimensional space. These merely editorial amendments do not introduce any new matter. Entry thereof is respectfully requested.

3) Further according to the PCT procedures, the original claims of this application were a direct literal translation of corresponding foreign language claims of the PCT International Application. The claims have now been editorially and formally amended to better comply with typical US claim drafting requirements and conventions. These claim amendments do not narrow the scope of the claims. Furthermore, particular issues of clarity or definiteness have been addressed, as will be

discussed below. Entry and consideration of the claim amendments are respectfully requested.

4) New claims 15 to 27 have been added. Claims 15 to 20 depend from claim 8. Claim 15 recites an optional feature removed from claim 14. Claim 16 recites optional features removed from claim 8. Claims 17 to 20 recite additional features that further distinguish the invention over the prior art. Claims 21 to 27 have been drafted anew "from the ground up" to cover inventive subject matter with a somewhat different claim style, format and terminology in comparison to the original literally translated PCT claims. The new claims are supported by the original disclosure as shown in the following table and do not introduce any new matter. Entry and consideration of the new claims are respectfully requested.

new claims	15	16	17	18	19	20	21
original support	Cl 14	Cl 8	Cl 8; P 2 L 12-15; P 3 L 4-7; P 6 L 17-21	P 7 L 8-14	P 7 L 8-14	P 7 L 11-14	Cl 8; P 2 L 9-18; P 3 L 1-7; P 6 L 1-21; P 7 L 8-P 8 L 6

new claims	22	23	24	25	26	27
original support	P 2 L 12-15; P 3 L 4-7; P 6 L 17-21	P 3 L 4-7; P 6 L 17-21	P 2 L 12-15; P 3 L 1-4; P 6 L 14-17; P 7 L 19-25	P 7 L 11-14	P 7 L 8-14	P 7 L 8-14

5) Referring to section 1 on page 2 of the Office Action, the rejection of claims 8 to 14 as indefinite under 35 USC 112(2) has been addressed in the present claim amendment. The optional

"especially" clauses have been removed from claims 8 and 14, and have instead been recited in new dependent claims 15 and 16. The unclear alternative language has been avoided in claim 9. It is respectfully submitted that claims 8 to 14 are now clear and definite in particularly pointing out and distinctly claiming the subject matter regarded as the invention. Accordingly, please withdraw the rejection under 35 USC 112(2).

6) Referring to section 3 on pages 2 and 3 of the Office Action, the rejection of claims 8 to 13 (sic: 14) as anticipated by US Patent 5,122,966 (Jansen et al.) is respectfully traversed.

Jansen et al. disclose a method of computer-aided human visual determination of possible tool path interference during an intended milling operation, in which a computer generated image of the relevant portion of the workpiece and a computer generated image of the milling tool are visually observed on a computer display screen by a human operator (see abstract; col. 2 lines 27 to 34; col. 3 lines 3 to 38).

In the system and method according to Jansen et al., there is no automated computerized comparison of the tool path with a pre-defined collision contour. Instead, the Jansen et al. method is merely a "graphic display method" (col. 2 line 63) in which "computerized images of the portion of the workpiece and the tool" are "observed" on a computer screen by an operating personnel (col. 2 lines 27 to 34), so that the operating personnel can determine whether a collision between the milling

tool and the workpiece will occur by viewing the computer generated images (col. 3 lines 35 to 38).

Because this is a graphic display method in which the computer system must model and display successive images of the pertinent portion of the workpiece and of the tool, this method imposes a substantial computational burden for computing and generating the computer model images. Jansen et al. do not disclose the much simpler concept of merely defining a collision contour corresponding to a surface or an edge of a sidewall feature of the milled component that is to be produced, rather than a complete computer generated model image of the workpiece.

Jansen et al. also do not disclose automatically monitoring the position or orientation of the milling tool along its tool path relative to the collision contour to determine whether a collision will occur. Instead, the method according to Jansen et al. merely generates and displays computer model images of the workpiece and of the tool, and an operating personnel must visually observe whether a collision will occur.

Contrary to Jansen et al., present independent claim 8 expressly recites that at least one collision contour is defined, whereby this collision contour corresponds to a surface or edge of a sidewall of the component that is to be produced, and the position or orientation of the milling tool relative to the collision contour is monitored to determine whether the milling tool will collide with at least one of the collision contours.

Regarding the disclosure of Jansen et al., the Examiner has asserted that "*the exact shape of the workpiece is input into a computer, and this shape is the collision contour of present claims 8+*". That assertion is respectfully traversed, because the presently claimed collision contour must correspond simply to a surface or an edge of a sidewall of the component that is to be produced. On the other hand, as pointed out by the Examiner, the method of Jansen et al. involves programming, generating and graphically displaying the exact shape of the pertinent portion of the workpiece, which involves much more computational burden than merely defining a collision contour as presently claimed.

The Examiner has further asserted that "*the position of the tool relative to the workpiece is monitored*" by Jansen et al. in that the successive relative position of the tool and the workpiece is computer-modeled and displayed on a computer screen. It is respectfully submitted that the computerized display method of Jansen et al. does not involve any "monitoring" for a potential collision, but merely displaying of the computer generated images, which must then be visually observed by a human operator, in order for the human operator to decide whether a collision will occur. That does not disclose and would not have suggested the present automated method including monitoring the tool path in comparison to the collision contour.

The dependent claims recite additional features that further distinguish the invention over the prior art, for example as follows. Present claim 13 recites that the method further

involves a step of generating an error protocol and/or an error message if a collision is determined. The Examiner apparently tacitly acknowledges that Jansen et al. do not disclose the generation of an error message, but the Examiner asserts that "*when the operator sees an interference and takes action to correct it, that is considered to constitute an error protocol*". However, even such human action after a human decision that a collision will occur does not constitute a method step of generating an error protocol, but rather the human operator merely follows an error protocol that was apparently previously defined or specified but not directly in response to a determination of an imminent collision.

For the above reasons, the prior art reference does not disclose all of the features of the present invention, and the Examiner is respectfully requested to withdraw the anticipation rejection of claims 8 to 14.

7) The new dependent claims 17 to 20 recite additional features that further distinguish the invention over the prior art.

Claim 17 expressly recites that the method involves a step of generating an error message if an imminent collision is determined. Jansen et al. do not disclose such generation of an error message.

Claims 18 and 19 recite that the collision contour consists simply of a one-dimensional line in three-dimensional space, especially corresponding to an edge of the component to be produced. These claims make it clear that merely defining a

collision contour as a one-dimensional line such as a simple edge of the component to be produced, is much simpler and computationally less burdensome than programming and computer generating a complete graphic image of the relevant portion of a workpiece as taught by Jansen et al.

New claim 20 recites that the collision contour is defined by moving the milling tool along and in contact with a respective edge of the component to be produced. Jansen et al. do not disclose such a simple "teaching" or "machine learning" step for defining or specifying collision contours, but rather discloses that the human operator must input all of the data defining the complete graphical image of the portion of the workpiece to be visually observed for possible collisions.

8) New independent claim 21 is directed to a method of producing a milled component involving a step of defining a collision contour of a desired milled shape of the milled component to be produced, wherein the collision contour establishes a boundary which may not be crossed by the proposed tool path of the milling tool to avoid damaging the desired milled shape. The method further involves a step of comparing the proposed tool path with the collision contour to determine whether the proposed tool path crossed the collision contour, and then generating a collision signal indicative of a collision if the proposed tool path is determined to cross the collision contour. In comparison to the method of present claim 21, Jansen et al. (among other things) do not disclose a step of generating a collision signal indicative of a collision if a proposed tool path is determined

to cross a collision contour. Instead, according to Jansen et al., a human operator must visually observe computer generated images of the workpiece and of the tool to decide whether a collision will occur. Thus, the Jansen et al. method does not involve generating a collision signal that indicates to a user whether a collision will occur. The new dependent claims 22 to 27 recite additional features that further distinguish the invention over the prior art. The Examiner is respectfully requested to individually compare the features of claims 22 to 27 with the prior art.

9) The additional prior art made of record on Form PTO-892 requires no particular comments, because it has not been applied against the claims.

10) Favorable reconsideration and allowance of the application, including all present claims 8 to 27, are respectfully requested.

Respectfully submitted,

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Enclosures:
Transmittal Cover Sheet,
Term Extension Request,
Form PTO-2038

CERTIFICATE OF FAX TRANSMISSION:

I hereby certify that this correspondence with all indicated enclosures is being transmitted by telefax to (571) 273-8300 on the date indicated below, and is addressed to: COMMISSIONER FOR PATENTS, P.O. BOX 1450, ALEXANDRIA, VA 22313-1450.

/Walter F. Fasse/ 1/5/09

Name: Walter F. Fasse - Date: January 5, 2009